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## NOTICE OF ALLOWANCE AND FEE(S) DUE

23338 7590 09/29/2008

DENNISON, SCHULTZ & MACDONALD  
1727 KING STREET  
SUITE 105  
ALEXANDRIA, VA 22314

EXAMINER

TURNER, SONJI LUCAS

ART UNIT

PAPER NUMBER

1797

DATE MAILED: 09/29/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,284	08/23/2006	Bjorn Christiansen	06116	2323

TITLE OF INVENTION: VANE DIFFUSER

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$720	\$300	\$0	\$1020	12/29/2008

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

### HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

## PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**  
**Commissioner for Patents**  
**P.O. Box 1450**  
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**or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

23338                    7590                    09/29/2008  
**DENNISON, SCHULTZ & MACDONALD**  
**1727 KING STREET**  
**SUITE 105**  
**ALEXANDRIA, VA 22314**

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

### Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the **Mail Stop ISSUE FEE** address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,284	08/23/2006	Bjorn Christiansen	06116	2323

TITLE OF INVENTION: VANE DIFFUSER

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$720	\$300	\$0	\$1020	12/29/2008
EXAMINER	ART UNIT		CLASS-SUBCLASS			
TURNER, SONJI LUCAS		1797	055-442000			

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.  
 "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,  
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent):  Individual  Corporation or other private group entity  Government

4a. The following fee(s) are submitted:

Issue Fee  
 Publication Fee (No small entity discount permitted)  
 Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

A check is enclosed.  
 Payment by credit card. Form PTO-2038 is attached.  
 The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.  
 b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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10/598,284	08/23/2006	Bjorn Christiansen	06116	2323		
23338	7590	09/29/2008	EXAMINER			
DENNISON, SCHULTZ & MACDONALD 1727 KING STREET SUITE 105 ALEXANDRIA, VA 22314				TURNER, SONJI LUCAS		
		ART UNIT		PAPER NUMBER		
				1797		
DATE MAILED: 09/29/2008						

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 219 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 219 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/598,284	CHRISTIANSEN ET AL.	
	Examiner	<b>Art Unit</b>	
	SONJI TURNER	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to 8/18/2008.
2.  The allowed claim(s) is/are 10-19 (re-numbered 1-10, canceled 1-9).
3.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All
  - b)  Some\*
  - c)  None
 of the:
  1.  Certified copies of the priority documents have been received.
  2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftsperson's Patent Drawing Review (PTO-948)
3.  Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date 9/8/2008
4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5.  Notice of Informal Patent Application
6.  Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other \_\_\_\_\_.

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The substitute specification for the application has been amended as follows:

Page 1:

**[0002]**

line 2, delete "reservoir" and insert -reservoir,—  
line 3, delete "Therefore" and insert -Therefore,—

**[0003]**

line 2, delete "First" and insert -First,—  
line 5, delete "diffuser or the like" and insert -diffuser, or the like,—  
line 7, delete "stage" and insert -stage,—

Page 2:

**[0006]**

line 2, delete "design" and insert -design,—  
line 15, delete "Recently" and insert -Recently,—

Page 4: [0013], line 5 "result" and insert -result,—

Page 5:

**[0016]**

line 1, delete "embodiment" and insert -embodiment,—  
line 8, delete "vane" and insert -vane,—

Page 7:

**[0024]**

line 11, delete "outer edge 17" and insert -outer edge—  
line 13, delete "inner edge 18" and insert -inner edge—  
line 15, delete "suction side 18" and insert -suction side 18,—

Page 8: bridge for **[0024]**, line 2 delete "forces" and insert -forces,—

Page 9:

**[0026]**, line 6, delete "outlet 13" and insert -outlet—

**[0030]**, line 6, delete "cavity 20" and insert -cavity 20,—

Page 10:  
**[0031]**  
lines 7-8, delete “separator’s,” and insert after zone 5 –of separator 1—

2. The drawings received on August 18, 2008, as replacement sheets are acceptable.
3. Applicant’s remarks, see pages 8-10, filed August 8, 2008, with respect to claims 1-9 have been fully considered and are persuasive. Examiner acknowledges applicant removing reference numerals from the new claims 10-19 and recognizes that the new claims 10-19 replace claims 1-9 which have been canceled. Accordingly, the rejection of claims 1-9 has been withdrawn.
4. The following is an examiner’s statement of reasons for allowance: In independent claim 10, applicant recites the structure of the vanes for the instant invention that clarity any ambiguities and deficiencies for the description of the structure of the vanes of the previously canceled claims. The recitation for the structure clearly states “ . . . a plurality of curved, parallel vanes disposed between the top plate and the bottom plate and defining diffuser channels therebetween, each of said vanes having a thickness which increase continuously in the flow direction to a maximum, then continuously decreases resulting in a cross sectional area of the diffuser channels which expands evenly, said diffuser channels leading to an outlet in the flow direction . . . .” This limitation is also recited in independent claim 19 which includes the subcombination, the vane diffuser, in a separation apparatus.
5. The closest prior art references are Christiansen ‘437 (US 7,144,437), McEwan ‘424 (US 4,767,424), and GB ‘699 (GB 1,119,699). Christiansen ‘437 teaches a vane diffuser for an inlet device. McEwan ‘424 teaches an arrangement between upper and lower walls of guide vanes

disposed one behind the other in the direction of flow where the flow is evenly distributed over the cross section of the separation apparatus with the vane-type inlet device. GB '699 teaches an inlet and distribution device made of a number of curved guide vanes placed one behind the other where the leading end of each vane has a sharp angle with the direction of the main flow of the gas/liquid mixture entering a separation apparatus, such that each vane intercepts and deflects the feed stream and is capable of effecting a separation between liquid and vapor by inertia and centrifugal force; the plurality of vanes form a series where the vanes are placed at such a distance from each other that a substantially uniform distribution of liquid and vapor is obtained over a cross-section in which the series of vanes extends.

Each reference teaches a gas/liquid separator with a vane-type inlet device used in liquid/gas separation apparatus, and each of Christiansen '437, McEwan '4244, and GB '699 are silent regarding the physical characteristics of the vane dimensions, such as width, depth, or "thickness." The prior art of record does not teach or fairly suggest the structural limitations relating to dimensions for the vanes as recited in independent claims 10 and 19. Additionally, it would not have been obvious to one of ordinary skill in the art at the time of the present invention to provide such structure because none of the prior art references of record suggest such modification. Accordingly, independent claims 10 and 19 and dependent claims 11-18 linked to claim 10 are allowable.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and is listed on PTO-892 (Notice of References Cited).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SONJI TURNER whose telephone number is (571)272-1203. The examiner can normally be reached on Monday - Friday, 10:00 am – 2:00 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Duane S. Smith/  
Supervisory Patent Examiner, Art Unit  
1797  
9-22-08

st  
09/18/2008